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A RETROSPECTIVE COMPARISON OF HIGH DOSE RATE BRACHYTHERAPY AND EXTERNAL BEAM RADIOTHERAPY IN THE TREATMENT OF HIGH RISK CLINICALLY LOCALIZED PROSTATE CANCER AT THE WINDSOR REGIONAL HOSPITAL DURING 2001-2014.

Dan A. Gillett
gillettd@uwindsor.ca

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Schulich School of Medicine and Dentistry, dgillett2016@meds.uwo.ca

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Junaid Yousuf, Dan Gillett, Umair Majid, Maher El Masri, Abeer Omar, Colvin Springer, Khalid Hirmiz, Ming Pan, Sindu Kanjeekal, John Matthews, Yasmin Alam, Tarek Elfiki, Akmal Ghafoor, Rasna Gupta, Caroline Hamm, Swati Kulkarni, and Ken Schneider

Introduction

Prostate cancer is the second most common cancer in men worldwide. Curative therapies for clinically localized prostate cancer include surgery, radiation therapy and brachytherapy. One randomized control trial has however shown that high dose rate brachytherapy (HDR-BT), when given in conjunction with external beam radiotherapy (EBRT), is more effective than EBRT alone[1]. The goal of this study was to compare the results of curative HDR-BT with EBRT against EBRT alone.

Materials and Methods

A retrospective chart review was completed on a sample of 324 patients who were treated at a regional cancer centre in southwestern Ontario between 2001 and 2014. These patients were classified as high-risk according to the American Urological Association and European Association of Urology of having clinical or pathological staging T2c/T3a or Gleason score of 8-10 or Prostate Specific Antigen (PSA) ≥ 20 ng/mL. Of the 324 patients, 53 received HDR-BT with EBRT and 271 received EBRT only. Relapse was defined using the Phoenix definition of PSA rise 2 ng/mL above the nadir. The primary and secondary endpoints of the study were relapse free survival (RFS) and overall survival (OS).

Results

The mean age of the study sample was 78 years (SD ± 8.1) with a mean pre-treament PSA of 17.98 (SD ± 15.79). While relapse occurred in 43 of the 271 patients who received EBRT, only 3 of the 53 patients who received HDR relapsed. Kaplan Meier survival analysis suggested that by the end of the 5 year follow up, more than 50% of patients in each of the study groups were relapse free; and thus median survival was not calculable. The mean time to relapse between the EBRT and HDR groups was (53.7 and 58.5 months, respectively; Log rank = 3.82, p = 0.05).

Conclusion

Patients who underwent HDR-BT compared to EBRT had a higher RFS and OS. Time to relapse was lower in patients who underwent EBRT when compared to HDR-BT. Further analysis on a larger sample is warranted given the limited number of HDR patients in our study.

1. Hoskin P, Motohashi Kate, Bownes Peter, Bryant Linda, Ostler Peter. High Dose Rate Brachytherapy in Combination with External Beam Radiotherapy in the Radical Treatment of Prostate Cancer: Initial Results of a Randomized Phase Three Trial. Radiotherapy and Oncology. 2007; 84: 114-120.